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AUTHOR Strube, Michael J.; Werner, Carol
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ABSTRACT

Past research suggests that Type A's have a higher need for control than Type B's, and empirical evidence documents their greater reactivity to control loss. To extend investigation to control decisions and examine the hypothesis that Type A's would be less willing than Type B's to relinquish control to another person, 160 male undergraduates were classified as Type A's or Type B's based on the Jenkins Activity Survey, Form T. On an initial 20-trial reaction-time task, Type A and B subjects received feedback about their own performance, and that of a partner. The feedback indicated equal or superior performance by the partner. On a subsequent replication of the task where only one person could work on any one trial, Type A's, relative to Type B's, were found to relinquish fewer trials to their partners, particularly when the partner had exhibited a superior initial performance. Attribution data indicated that Type A's were less convinced of the diagnosticity of their partners' initial performance with respect to its likelihood of replication, justifying lower relinquishment. Thus, in a situation where competence information and control needs conflicted, Type A's appeared to be less rational decision-makers than Type B's; their control needs appeared to override the most effective use of available information. Additional attribution data suggested, however, that Type A's made decisions which they believed would lead to successful task performance. Results indicated clear differences in control relinquishment by Type A's and B's as a function of feedback about their partner's performance, but no such differences emerged with respect to feedback about the subject's own performance. (Author/JAC)

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Relinquishment of Control and the Type A Behavior Pattern

Michael J Strube

Washington University

Carol Werner

University of Utah

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Running head: Control and Type A Behavior

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Correspondence should be addressed to Michael J Strube, Dept. of Psychology, Washington University, St. Louis, MO 63130.

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Abstract

Past research suggests that Type A's have a higher need for control than Type B's, and, empirical evidence documents their greater reactivity to control loss. This study extended investigation to control decisions and examined the hypothesis that Type A's would be less willing than Type B's to relinquish control to another person. On an initial 20-trial reaction-time task, Type A and B males received feedback about their own performance, and that of a partner. The feedback indicated equal or superior performance by the partner. On a subsequent replication of the task where only one person could work on any one trial, Type A's relative to Type B's were found to relinquish fewer trials to their partners, particularly when the partner had exhibited a superior initial performance. Attribution data indicated that Type A's were less convinced of the diagnosticity of their partners' initial performance with respect to its likelihood of replication, thus justifying lower relinquishment. The implications of these results for job stress and management decision-making are discussed.

Relinquishment of Control and the

Type A Behavior Pattern

A considerable body of literature implicates an overt behavior pattern, known as Type A, in the etiology of coronary heart disease (CHD; for reviews see Dembroski, Weiss, Shields, Haynes, & Feinleib, 1978; Glass, 1977; Krantz, Glass, Schaeffer, & Davia, 1982; Matthews, 1982). Both prospective and retrospective studies have indicated that the Type A pattern is associated with twice the occurrence of CHD as a noncoronary-prone pattern known as Type B (e.g., Jenkins, Rosenman, & Zyzanski, 1974; Rosenman, Brand, Jenkins, Friedman, Straus, & Wurm, 1975). The Type A pattern is characterized by a hard-driving, competitive lifestyle that involves a "...chronic, incessant struggle to achieve more and more in less and less time, and if required to do so, against the opposing efforts of other things or other persons" (Friedman & Rosenman, 1974, p. 67). Accumulated research evidence (reviewed by Matthews, 1982) validates the major behavioral components of the pattern: competitive achievement striving, time urgency, and hostility, and further suggests an underlying motivational dynamic. In particular, initial work by Glass and his colleagues (Glass, 1977), and more recent investigations, have provided compelling evidence that the Type A pattern is motivated by an intense need to maintain personal control over life events. For example, Glass (1977, chaps. 7-9; see also Brunson & Matthews, 1981; Krantz, Glass, & Snyder, 1974; Matthews, 1979) has found that brief exposure to salient uncontrollable stress produces exaggerated responding by Type A's on a subsequent task (termed "hyperresponsiveness"). However, prolonged exposure produced depressed responding (termed "hyporesponsiveness"). This pattern of response matches that predicted from the integration of the learned helplessness model and reactance theory (Wortman & Brehm, 1975) suggesting the importance of the control construct with respect to Type A behavior. More recently, investigations using reactance procedures have found evidence for greater reactivity by Type A's than Type B's in terms

of attitude change (Carver, 1980; Snyder & Frankel, Note 1) and eliminated-choice attractiveness (Rhodewalt & Comer, 1982; Rhodewalt & Davison, 1983). Taken together, these studies are consistent in demonstrating that a control dynamic underlies the Type A pattern, and that Type A's are more responsive to control loss or threat than Type B's (see also Fazio, Cooper, Dayson & Johnson, 1981).

Relinquishment of Control

The present study was designed to extend investigation of the Type A control dynamic to situations where control over an important task can be willfully given up to another person. On theoretical grounds, it seems likely that if Type A's expend such energy maintaining control, and regaining it once it is lost, then they should be less willing than Type B's to relinquish control voluntarily to others. Moreover, inefficient relinquishment may have important consequences for both work productivity and health, a point elaborated below and in the discussion.

That Type A's are, in fact, more reluctant than Type B's to give up control to others is suggested by research examining work settings. For example, clinical interviews with Type A men indicate a work environment dominated by long hours, constant deadline pressures, and irritation with the work efforts of others (Friedman & Rosenman, 1974; Jenkins, 1975). Howard, Cunningham, and Rechnitzer (1977) found that Type A managers indicated more dissatisfaction with conflicting job demands, heavy responsibilities, and supervision of others; and Sales (1970) reports a significant relationship between Type A and desire for task independence. Burke and Weir (1980) have found Type A behavior to be significantly related to more hours worked, greater workload, and more work-related stressful life events (see also Caplan, 1972; Howard, Cunningham, & Rechnitzer, 1976; Howard, Rechnitzer, & Cunningham, 1975; Keegan, Sinha, Merriman & Shipley, 1979; Waldron, 1978). In other words, it would appear that Type A's may be less satisfied with, and make less use of, the work efforts of others.

In an investigation that examined work preferences, Dembroski and MacDougall (1978) found that Type A's exhibited a marked preference for working alone under stress. The results of an additional study by these investigators suggest that the preference may reflect the greater control needs by Type A's. When asked to explain differential work preferences, Type A's reported that "others get in the way," "others slow me down," and "if I do it (the job), I know it will be done right" (Dembroski & MacDougall, 1978, Study 3).

Results from the management literature provide several striking parallels to the Type A/B literature, and further suggest that the failure to relinquish control may exacerbate work stress. For example, the symptoms of poor delegation include constant work pressure, criticism of subordinates, and an "I can do it better" attitude (e.g., McConkey, 1974; Newman, Summer, & Warren, 1968), all resembling the characteristics of the Type A pattern. In addition, a concern over "losing control" has been found to be a common reason given by managers who won't delegate (Boyd, 1968; Stewart, 1976).

More recently, Miller, Lack, and Asroff (Note 2) examined control preferences among Type A's and B's confronted with an aversive situation. After learning that a partner had a faster reaction time, the subject and partner were "yoked" on a second task where a quick response by one (and only one) of the pair would avoid an aversive noise blast. Type A's and B's were given the option of keeping the controlling response or giving it to their more able partner. Results indicated that Type A's, particularly males, were more likely than Type B's to keep the controlling response. Thus, at least in terms of avoiding noxious stimuli, Type A's have been found to be more reluctant than Type B's to give up control to another person.

As a whole, these studies suggest that the greater control need of Type A's may manifest itself in an inability or unwillingness to delegate responsibility or task control to others. By refusing to utilize the resources of others, Type A's may increase their job

demands and workloads needlessly, with concomitant increases in job-related stress. However, a clear empirical demonstration of control relinquishment differences between Type A's and B's is lacking. Hence, one purpose of this study was to examine the hypothesis that Type A's would be less likely than Type B's to relinquish task control to another person.[1]

Information Utilization. A second purpose of this study was to examine the extent to which the Type A's high need for control influences the utilization of information relevant to a control decision. In most relinquishment decision situations, information is available concerning the task competence of both the decision-maker, and a person to whom the task can be delegated. This information must be used effectively if an appropriate relinquishment decision is to be made. Of particular importance in the present context are situations where available information and control needs conflict in their implications for control relinquishment. Such situations arise for Type A's when they are confronted with information indicating that they are incompetent, or, if competent, that they are less competent than another person. In both instances competence information suggests that control ought to be relinquished. However, any information-based tendency toward relinquishment is countered by the presumed desire by Type A's to keep control. Indeed, the competence information may be construed by Type A's as a threat to their control. The end result may be a compromise whereby Type A's will appear to underutilize information, and thus relinquish less control, relative to Type B's. Stated differently, if Type A's are more reluctant to give up control to others, they should require more convincing evidence than Type B's that relinquishment is, in fact, the best decision.

In the present study Type A's and B's were provided with information concerning their own competence and that of a partner on a supposedly important task. This information indicated that the subject's ability level was either average or below average, while his partner's was average, slightly above average, or much better than average. On

a subsequent replication of the task, subjects had to decide how much task control to relinquish to the partner. Notice that in all situations, the subject's partner is equal to or superior in presumed abilities. As a result, when the competence information is unequivocal, it suggests relinquishment is called for, precisely the conflict situation described above. It was predicted that, overall, Type A's would relinquish less task control to their partners than would Type B's, and, that these differences would be exaggerated when the competence information (for another person and/or for the self) implicated relinquishment as the most appropriate strategy. In these latter situations, Type B's, unencumbered by high needs for control, should readily give up task control to others. Type A's, on the other hand, should be more reluctant to relinquish control and thus appear to underutilize important information.

Attributional/Expectational Concomitants of Relinquishment. A final issue examined in this study derives from the above discussion. In particular, the predicted underutilization of information by Type A's relative to Type B's makes them appear to be less rational decision-makers, at least in the situations described. However, it was expected that all decisions, regardless of their level of relinquishment, would appear quite rational from the subjects' own perspective. Thus, rather than simply disregarding information, Type A's may very well arive at a different interpretation than Type B's. This perspective was investigated by examining the attributions made for the prior performances on which competence information was based, and the subsequent expectations for future performances.

Current performance attribution models (e.g., Abramson, Garber, & Seligman, 1980; Abramson, Seligman, & Teasdale, 1978; Bandura, 1977, 1982; Weiner, 1972, 1974; Weiner & Litman-Adizes, 1980) suggest that attributions have expectational implications for future performance. Thus, the attributions made for any given performance also imply a belief in the extent to which that performance will replicate in the future. In

the present context, examination of these attributions allows insight into the subjects' own expectational beliefs--beliefs which may diverge drastically from those predicted on the basis of competence information alone. As a result, a relinquishment decision which appears irrational from a strict information utilization standpoint, may appear quite rational in light of the subjects' attributions--attributions that may be influenced considerably by control motivation (cf. Smith & Brehm, 1981; Wortman, 1976).

In summary, it was expected that Type A's would exhibit an overall tendency to relinquish less control over a task than Type B's. Furthermore, Type A's were expected to require more convincing evidence that control should be relinquished before they would give up as much control as Type B's. Finally, regardless of actual relinquishment levels, relinquishment decisions were expected to appear quite rational when considered from the subjects' own attributional standpoint. Thus in situations where Type A's may appear to be making inappropriate decisions based on competence information, examination of attributions may reveal that from their own subjective perspective such a decision is clearly justified.

Method

Overview

Pairs of male subjects were recruited to participate in a study of "independent and coordinated problem-solving skills." On 20 trials of an initial reaction-time task, subjects worked independently and were given feedback (controlled by the experimenter) about their own performance, and the performance of their partners. Subjects learned that they had either performed at an average level (10 of 20 correct) or at a level below average (5 of 20 correct). Feedback about the partner's performance indicated either average performance (10 of 20 correct), somewhat better than average performance (13 of 20 correct), or superior performance (18 of 20 correct). An additional group received no feedback about the partner's performance. Subjects were then led to expect a subse-

quent 20 trials of the reaction-time task in which their efforts would be combined. Each subject was led to believe that only one person could perform on any one trial, and, that he had been chosen to decide who would perform on each of the 20 trials. The number of trials relinquished to the partner constituted the major dependent variable. Following the relinquishment decision, subjects completed a questionnaire that measured attributions for performance on the first task, and expectations for performance on the second task.

Subjects

One hundred and sixty male undergraduates participated in the study in exchange for extra credit toward their introductory psychology course grade. All subjects completed the Jenkins Activity Survey (JAS), Form T (Krantz, Glass, & Snyder, 1974), a student-adapted measure of the Type A pattern, immediately prior to taking part in the experiment proper. Scores on the JAS can range from 0 to 21, with higher scores indicative of Type A behavior. In the present sample, scores ranged from 2 to 15 (M = 8.225, SD = 3.223). Based on a median split (Md = 8.237), subjects were classified as Type A's (scores of 9 or greater) or Type B's (scores of 8 or less). Average age of the sample was 20.7 years.

Apparatus

The reaction-time task used in this study was a modified version of that used by Miller (1980). The subject's task was to monitor a set of four colored lights (while ignoring five flashing distractor lights) and respond to a light onset by pressing an appropriately colored button. Each subject's display panel consisted of an array of nine lights, four of which were colored (red, green, blue, and yellow), and five of which were white distractors that flashed in a random order (switching time approximately 1 second). Four colored buttons corresponding to the colored lights were located below the nine-light array. During the task, subjects responded to a colored light onset by pressing

the appropriately colored button. Below the response buttons were two sets of two feedback lights that signalled whether the preceding responses by the subject and his partner had been fast enough. Both panels were connected to a central control panel operated by the experimenter during the study. This panel allowed manual activation of the colored lights according to a predetermined schedule, monitoring of responses by subjects, and presentation of feedback.

Procedure

Subjects were randomly assigned to one cell of a 2(Feedback about Subject's Performance) x 4(Feedback about Partner's Performance) factorial design. Pairs of subjects participated in the study and were assigned to the same condition. Upon arrival for the experiment, subjects were seated in separate rooms to eliminate interaction, and to allow manipulation of feedback without arousing suspicion. All communication with the experimenter took place via an intercom system controlled from a third room. After being seated, subjects were instructed to complete the JAS (ostensibly to provide background information to be used in interpreting their performance). This scale was not scored until the conclusion of the study to insure that the experimenter remained blind to subject status on the Type A/B variable.

Following completion of the JAS, subjects were given a description of the study's purpose. All were told that the study was designed to examine the problem-solving strategies used in independent and coordinated task performance. It was explained that many day-to-day problems require individual solutions, while other problems require that people work together. The object of the study was to examine similarities in problem-solving strategies used in these two situations by having the subjects work on one task alone, and one task together. A description of the task was then provided.

Subjects were told that they would be performing a choice reaction-time task which would require them to monitor the panel of lights in front of them, respond to a

colored light onset with an appropriate button press, but ignore all other light onsets (blinking distractors). The experimenter noted that past use had validated the task's ability to measure problem-solving skill (several examples were provided), and that successful performance on the task had been found to be related to intelligence and academic potential. These latter statements were meant to maximize involvement in the task, a condition necessary for elicitation of Type A/B differences (cf. Goldband, 1980; Pittner & Houston, 1980).

Following this general description, more specific instructions were provided. Subjects were told that initially each would perform the task alone so that individual problem-solving could be assessed. After each of 20 trials, feedback would be provided (via lights on the panels) indicating whether the response had been faster than the standard set for that trial. Thus a response was either "correct" (fast enough) or "incorrect" (not fash enough). Depending on experimental condition (see Feedback Manipulation below), subjects also received trial by trial feedback on the partner's performance. Subjects were told that this information would be of use to them when they teamed up on the second task. However, subjects were told that the order of the 20 trials on the first task would be randomized separately for each subject so that they would not feel as though they were competing. Subjects were instructed to mark down the feedback, after every trial, on a form provided for that purpose. This insured that the feedback, and performance, were highly salient. Finally, subjects were told that average performance on the task was approximately 50% correct. This provided an anchor for the subjects' performance evaluations.

Prior to beginning the task, subjects were asked to complete a two-item questionnaire which required rating the importance of doing well on the task, and providing an estimate of the expected number of successful trials. Following completion of these items, 20 trials of the choice reaction-time task were conducted. The beginning of each

trial was signalled by a tone transmitted over the intercom. The order of the colored lights was randomized with onsets ranging from 1 to 10 seconds following the tone.

Feedback Manipulation. The feedback that subjects received after each trial was given according to a predetermined order and constituted the two remaining independent variables (other than Type A/B). Subjects themselves were led to believe that they had gotten either 5 or 10 trials correct. The numerical levels of this variable were determined in a prior pilot study. The order of the correct/incorrect feedback for the "five correct" group was determined randomly. To construct the "ten correct" list, the order of the "five correct" list was maintained with the exception that five incorrect responses were randomly changed to correct responses. This allowed a slight control for order across the two lists.

With respect to feedback about the partner, subjects either received no feedback, or discovered that the partner achieved success on 10, 13, or 18 of the 20 trials. The no-feedback condition allowed examination of the attributions and expectations that subjects made in the absence of social comparison information. The numerical levels of feedback were likewise based on pilot work and were designed to span a range of values where one could expect considerable variability in relinquishment. The feedback conditions were constructed in a manner similar to construction of the subjects' own feedback list. It should be noticed that in all conditions where feedback about the partner was received, subjects were led to believe that the partner was equal to, or better than, the subject. This restriction derived from interest in underutilization of information by Type A's when relinquishment is clearly called for. The issue of whether Type A's would overutilize information indicating their superiority on the task was not examined in this study.

Following completion of the 20 reaction-time trials, subjects were told to total up the number correct on their feedback forms, and were given instructions concerning the

next phase of the study. Subjects were told that they would now team up and combine their efforts on another 20 trials of the reaction time task. It was explained that the object of the second task was for the team to do as well as possible. In this way, cooperative problem-solving could be examined. To emphasize the cooperative nature of the second task, subjects were told that if the team's performance was in the top 10% for the entire study, they would be eligible for one of three prizes: a clock-radio, a digital watch, or a calculator. Subjects were then informed that only one person at a time would be allowed to perform on any given trial. This requirement necessitated a decision as to who would work on each of the next 20 trials. The experimenter explained that this decision would be made by one of the subjects. In actuality, each subject was led to believe that he was the decision-maker. The experimenter stated that prior to the experiment he had randomly chosen one of the rooms by coin flip, and had placed a star on the back of the brown envelope on the table in that room (both rooms had a brown envelope on the table). The star signified who would be the decision-maker. Each subject was asked to examine the envelope in his room, and if it contained a star, to signal the experimenter. In fact, both envelopes had stars so that both subjects signalled that they were the decision-maker. The experimenter next communicated instructions that were meant to further convince each subject that he alone had been chosen as decision-maker. Immediately upon receiving the affirmative responses from the subjects, the experimenter addressed the decision-maker specifically: "Ok, Subjects #2, you will be the decision-maker for the next task." The words "Subject 2" were prominently displayed on the light panels of both subjects.

The decision-maker (actually both subjects) was directed to open his envelope and complete the first page of the materials which asked for a trial by trial allocation for the second task. The number of trials given to the partner constituted the major dependent variable. Following this first page was a questionnaire that asked subjects to rate their

initial performance, and that of their partner, on a number of attributional dimensions. Following a procedure used with the Attribution Style Questionnaire (cf. Peterson, Semmel, Metalsky, Abramson, Von Baeyer, & Seligman, Note 3) subjects specified what they perceived to be the major cause of performance, and then rated that cause along two dimensions: internal-external, and stable-unstable. In addition, performances were rated according to the degree to which ability and effort were contributing factors (cf. Weiner, 1972). Past research suggests that only the stability dimension (e.g., Abramson et al., 1980; Weiner & Litman-Adizes, 1980) and the internality dimension (Bandura, 1980) should be related to expectations for future performance or efficacy, and, ability and effort present themselves as salient attribution sources given the nature of the task. Finally, subjects were asked to provide ratings of confidence and expected success (for self and partner) on the upcoming task, as well as ratings of the similarity of the two tasks, the similarity of the abilities required for the two tasks, and the attractiveness of the prizes available for high team performance. All ratings on the questionnaire were made on 7-point bipolar scales. At several points during the experimenter's instructions concerning the questionnaires, Subject #1 (fictitious) and Subject #2 were referred to separately to further convince each subject that he alone was the decision-maker.

Subjects who did not receive feedback about their partners were still asked to complete items concerning their partner's performance. In this case they were asked to estimate how well the partner did, and the reasons for his performance. This allowed an indication of how subjects felt they compared to others in general, as well as the predominant attributions made in the absence of social comparison information.

Following completion of the attribution-expectation questionnaire, the experimental session was conluded. Subjects were asked to complete a questionnaire to probe for suspicion, after which they were thoroughly debriefed and excused. Examination of responses on the questionnaire indicated that subjects were unaware of the true purpose

of the experiment, were unsuspicious of the feedback manipulations, and did not question the integrity of their choice as decision-maker.

Results

Analyses were conducted using 2(Type A/B) x 2(Feedback about Subject's Performance) x 4(Feedback about Partner's Performance) analyses of variance with least squares solution for unequal n.[2] In addition to traditional significance tests, estimates of effect size were also computed. These estimates represent the proportion of variance (PV) accounted for by a given dependent variable and were calculated as follows: PV = SS(Effect)/SS(Total). For 1 df effects, PV is equal to the squared point-biserial correlation between the two-level independent variable and the continuous dependent variable. For 3 df effects, PV is equal to the squared correlation ratio (Kirk, 1968), or the squared multiple correlation (Cohen & Cohen, 1975). As a rough estimate, Cohen (1977) suggests that "small", "medium", and "large" effects account for approximately 1%, 6%, and 14% of the variance, respectively

Manipulation Checks

To determine whether Type A's and B's were randomly assigned to conditions, an analysis of variance of scores from the JAS was performed. Only the effect of Type A/B was significant ($F(1,144) = 336.198$, $p<.001$, PV = .684). The absence of any other effects (all $F's \leq 1.33$) indicates that Type A's and B's were distributed equally among the experimental conditions.

A check on the manipulation of feedback is provided by the ratings of performance given by subjects for their own performance and that of their partners. Subjects who were told they performed at an average level (10 correct) rated their performance higher ($M = 3.49$) than subjects who were told they performed below average (5 correct, $M = 2.01$), $F(1,144) = 79.047$, $p<.001$, PV = .322. Note that "average" subjects rated their performance near the midpoint of the 7-point scale, suggesting they had used the infor-

mation given during the instructions about average performance as an anchor.

The analysis of ratings of the partner's performance likewise revealed a significant main effect ($F(3,144) = 33.957$, $p<.001$, $PV = .592$). As the means in Table 1 illustrate, higher ratings were given to partners who performed better. Equally important, each mean is significantly different from all other means indicating the effectiveness of each level of this manipulation.

Insert Table 1 about here

Several additional findings are pertinent to interpretation of the results. First, overall, subjects appeared to take the task seriously. The modal rating for the importance of doing well on the task was 5 ($M = 4.937$) on a 7-point scale. Subjects also found the prizes available for high team performance to be attractive with a modal rating of 7 ($M = 5.200$).

Relevant to the presumed applicability of the feedback on the first task to the relinquishment decisions for the second task are findings that subjects saw the two tasks as fairly similar ($M = 3.681$, $Mo = 1.000$, reversed scale), and the abilities required for both tasks as quite similar ($M = 2.556$, $Mo = 1.000$, reversed scale).

Relinquishment of Control

Subjects whose partners performed at higher levels on the initial task relinquished more trials on the second task ($F(3,144) = 11.655$, $p<.001$, $PV = .160$), and, Type B's relinquished more trials than Type A's ($F(1,144) = 6.512$, $p<.025$, $PV = .0298$).[3] Both effects, however, were qualified by a significant Type A/B x Feedback about Partner's Performance interaction ($F(3,144) = 3.956$, $p<.01$, $PV = .0543$). As predicted, Type A's were less influenced by their partners' performances when relinquishing control. As the means in Table 2 indicate, most participants, but especially Type A's, used a 50/50 split in allo-

cating the trials. Type B's finally favored the partner when he had 18 correct trials, but no amount of evidence concerning the partner's capabilities could convince Type A's to relinquish a clear majority of trials.

Insert Table 2 about here

The manipulation of the subjects' own performance, though effective in altering perceptions of quality (see Manipulation Checks), did not influence relinquishment in a simple manner ($F(1,144) = .931$), nor in combination with Type A/B ($F(1,144) = .014$) or Type A/B and Feedback about the Partner's Performance ($F(1,144) = .17$). These findings indicate that feedback about their own performances had little impact on the relinquishment decisions of Type A's and B's, and suggest that key differences may exist in the use of information about the self and others. A discussion of these differences will be deferred until after presentation of the remaining results.

One additional finding emerged from the analysis of relinquishment decisions. The interaction between both forms of feedback was significant ($F(3,144) = 6.62$, $p<.001$, PV = .091) and indicated that subjects who performed poorly did not differ in their relinquishment decisions as a function of their partner's performance. The average performance subjects, however, relinquished more trials to superior partners than to those performing at average or moderate levels. These findings are described in greater detail elsewhere (Strube, Note 4).

Attributional Concomitants

Analysis of the attributional ratings for the partner's performance indicated that as performance increased, attributions became more internal ($F(3,144) = 4.010$, $p<.01$, PV = .0690), and more stable ($F(3,144) = 3.075$, $p<.04$, PV = .0640). Similarly, the performances of superior partners were attributed more to high ability ($F(3,144) = 14.617$, $p<$

.001, PV = .207) and to high effort ($F(3,144) = 9.912$, $p<.001$, PV = .161). Finally, subjects indicated higher confidence in their partner's chances of succeeding on the second task ($F(3,144) = 11.892$, $p<.001$, PV = .192), and expected a proportionately greater degree of success ($F(3,144) = 9.005$, $p<.001$, PV = .147), the more successful he had been on the first task.

Attributions for internality and ability were further qualified by Type A/B x Feedback about the Partner's Performance interactions (see Table 3). As the partner's performance increased, Type B's but not Type A's attributed the performance to more internal causes ($F(3,144) = 3.140$, $p<.05$, PV = .0542) and as due to higher ability ($F(3,144) = 2.838$, $p<.05$, PV = .0402). Thus, relative to Type B's, Type A's rated their partners' superior performances as being less predictive of future success. In sum, participants' attributions tend to parallel the relinquishment decisions.

Insert Table 3 about here

Correlational Analysis

A critical element of the reasoning set forth in this study is that attributions/expectations are used to make sense of or justify a given level of relinquishment. While the mean differences evident in the between-cells analysis indicate support for this proposition, they do not provide a complete test. A more stringent assessment requires examination of the correlations between relinquishment and attributions/expectations within conditions. A significant correlation in this case would signal the covariation of relinquishment and attributions/expectations independent of any between-cell variation. Correlation coefficients were calculated separately within each Type A/B x Feedback about Subject's Performance x Feedback about Partner's Performance condition, and then averaged. This procedure effectively eliminates all between-cell variability in the

computation of correlation coefficients and prevents spurious relationships from emerging (see Guilford & Fruchter, 1973). Only the data from the "18 correct" partner performance feedback groups were examined because only these groups had sufficient ranges on the relinquishment measure to allow sensitive detection of covariation. An initial analysis indicated that the correlations for Type A's and Type B's did not differ reliably.

Higher relinquishment was associated with attributions for the partner's performance that were more internal ($r(32) = -.502$, $p<.001$) and more stable ($r(32) = .299$, $p<.05$). Greater relinquishment was also associated with attributions to somewhat higher ability ($r(32) = .245$, $=p<.10$), and greater confidence in the partner's likelihood of succeeding on the second task ($r(32) = .404$, $p<.01$). In summary, there is evidence that in this group of subjects, relinquishment and attributions/expectations are related.

A second assumption concerns the relationships between attributions and expectations. In particular, attributions should imply certain expectations if they are to justify or explain relinquishment decisions. To test this hypothesis, the entire sample could be used. A correlational analysis indicated that attributions were reliably related to expectations. Subjects who expected their partners to succeed on a greater proportion of trials on the second task made attributions for their partners' initial performances that were more internal ($r(128) = -.180$, $p<.025$) and more stable ($r(128) = .143$, $p<.05$). Greater expectations for the partner's success were also related to higher ability attributions ($r(128) = .149$, $p<.05$). A generally parallel, though somehwat stronger, set of results was obtained for ratings of confidence in the partner's future success. Greater confidence was related to attributions that were more internal ($r(128) = -.323$, $p<.001$) and more stable ($r(128) = .310$, $p<.001$). Greater confidence was also related to higher ability attributions ($r(128) = .374$, $p<.001$) and higher effort attributions ($r(128) = .198$, $p<.025$). These two expectation measures (i.e., confidence and expected success) were

significantly related ($r(128) = .202$, $p < .025$).

The "Rationality" of Relinquishment Decisions

As mentioned previously, the Type A's tendency toward low relinquishment is a strategy that can be interpreted as irrational from a team success standpoint. That is, Type A's appear willing to ignore crucial information in order to maintain control, which would appear to have the effect of degrading the team's chances of success. However, as also mentioned, there are two levels at which the rationality of control relinquishment decisions can be examined. It may not be the case that relinquishment decisions appear irrational at both levels.

One "objective" approach would be to assume that the feedback should be utilized in a strict probabilistic manner. Thus a subject who achieves success on only 25% of the trials on the first task, in the absence of any other information, should expect to succeed on 25% of any trials that he keeps on the second task. A partner who succeeds on 90% of the trials on the first task should be expected to succeed on 90% of the trials relinquished to him on the second task. If S = proportion of successful trials by the subject on the first task, P = proportion of successful trials by the partner on the first task, and R = number of trials relinquished, then the expected number of successful trials (ES) by the team on the second task can be estimated by: $ES = (P \times R) + ((20 - R) \times S)$ or more conveniently: $ES = (20 \times S) + (R \times (P - S))$. A moment's thought will reveal that whenever $P > S$ the best strategy is to let the partner have all the trials on the second task. Obviously this strategy was rarely used (only 9 subjects did so), 6 of which were Type B's. Even the less optimal, though adequate strategy of relinquishing a clear majority of trials to better partners was a rare coincidence. Thus one conclusion might be that most subjects do not use sensible relinquishment strategies, and Type A's are particularly prone to such irrationality. However, it is entirely possible that subjects' relinquishment decisions make more sense or appear more rational when their actual expectations are

considered in calculating expected team success. From the subject's perspective, a given decision may appear quite sensible. The prior attributional data would suggest this is the case.

To address this issue, expected team success scores were calculated by using the formula given above, and substituting the subject's expected proportion of successful trials on the second task for S, the expected proportion of successful trials for the partner on the second task for P, and the number of trials relinquished for R. These expected team success scores were then analyzed via ANOVA. Only one significant effect emerged. Expected team success varied as a function of Feedback about the Partner's Performance ($\underline{F}(3,144) = 9.858$, $\underline{p}<.001$, $\underline{PV} = .159$); greater team success was expected the better the partner had performed on the first task. Expected team success did not vary as a function of Type A/B, nor jointly as a function of Type A/B and Feedback about the Partner's Performance, which indicates that despite their lower relinquishment, Type A's used a strategy that they appear to believe would have led to levels of team success comparable to those resulting from the relinquishment strategies used by Type B's. However, it must be remembered that this "sensible" strategy was bought at the expense of deviating from the objective feedback.[4]

Discussion

The major purpose of this study was to demonstrate that Type A's would be less willing to relinquish control voluntarily than Type B's, and, that this difference would be mediated by available information relevant to the relinquishment decision. The results clearly supported these hypotheses. Type B's were more likely than Type A's to relinquish trials to their partners, particularly when the evidence indicated that the partner had superior capabilities (cf. Miller et al., Note 2). Thus, in a situation where competence information and control needs conflicted, Type A's appeared to be less rational decision-makers than Type B's; their control needs appeared to override the most

effective use of available information. Additional attribution data suggested, however, that to call Type A's irrational is not completely accurate. When viewed in the context of the attributions made for the initial task performance, and subsequent expectations for the second task, Type A's made decisions which they believed would lead to successful task performance. It must be recognized that Type A's and B's did not differ in their ratings of the quality of the partner's performance. When the partner exhibited superior performance both Type A's and B's recognized its high level. The interpretations of those performances, however, differed and matched (in the expectational sense) the relinquishment decisions of Type A's and B's.

The results indicated clear differences in control relinquishment by Type A's and B's as a function of feedback about their partner's performance, but no such differences emerged with respect to feedback about the subjects' own performance. On the one hand these results are puzzling; we had anticipated that subjects (particularly Type B's) informed of their own low quality performance would be more willing to relinquish control. On the other hand, these results suggest that differences may exist in the informational utility of feedback about the self versus feedback about others. For example, feedback about the self has more important implications for self-esteem than does feedback about others. If the information has negative implications (as in the low performance group), then the feedback may be discounted or ignored in order to protect self-esteem. In addition, feedback about self-competence must compete with the subject's past history of performance in a wide range of situations. Given the capabilities of the average college student, the low performance feedback likely conflicted with past experience. The result, again, would be a discounting of the information's significance. By contrast, the feedback about the partner had to contend with little if any prior information. Though these differences are exacerbated in the present study, they are likely to exist in all situations since information about the self is

always richer and more extensive. In any case, the above speculations will require attention in future research.

Although this study demonstrates clear relinquishment differences between Type A's and B's, several limitations in the data, and additional mediating factors dictate the need for more research. For example, the causal priority of attributions and relinquishment decisions cannot be determined from this study. On the one hand, Type A's and B's may allocate control in a relatively automatic or "mindless" fashion (cf. Langer, 1978), with the different relinquishment strategies arising from their different control needs. When asked to account for their decisions, Type A's and B's may justify their actions through post hoc manipulation of performance attributions. On the other hand, Type A's and B's may carefully consider prior performance information, arrive at fundamentally different interpretations, and allocate subsequent task control in a manner following logically from those interpretations (i.e., attributions). Research is currently underway to examine this issue. This study was also limited to males. However, given the rapid influx of women into decision-making roles it is imperative that these findings be examined with female samples. A final limitation concerns the nature of the task. A reaction-time task proved quite useful in the present context because the performance on such a task is sufficiently ambiguous to allow effective manipulation of feedback. In addition, the feedback did not have to contend with prior experience on the task. And, the reaction-time task allows trial by trial administration of feedback and a sensitive measure of relinquishment. However, the majority of actual relinquishment decisions probably involve tasks where there is considerable prior experience. Furthermore, a decision-maker usually knows a wealth of "irrelevant" information about someone to whom control can be relinquished, while subjects in this study were strangers. Also, the possibility of communication about the relinquishment decision was not present in this study, nor was the possibility of long term implications of the decisions. All of these

task and decision parameters deserve attention. Thus, while the present paradigm provided a highly controlled and sensitive procedure for detecting relinquishment differences, the resulting limitations in generalizability must be recognized.

With the above comments in mind, several practical implications of differential relinquishment by Type A's and B's deserve mention. Perhaps the most obvious concerns the behavior of Type A's and B's in work settings. Not only do Type A's prefer to work alone (Dembroski & MacDougall, 1978), but they also desire to keep more task control than Type B's. These tendencies may underlie the intense job involvement and job overload problems that characterize the Type A work environment (e.g., Burke & Weir, 1980; Howard, Cunningham, & Rechnitzer, 1977; Sales, 1970). By failing to benefit from the work efforts of others, Type A's may impose a great deal of unnecessary stress on themselves (cf. Davidson & Cooper, 1980; Dembroski & MacDougall, 1978, Howard, Cunningham, & Rechnitzer, 1977). This problem is underscored by research indicating that Type A's supervise more subordinates (to whom control could be relinquished) than Type B's (Burke & Weir, 1980). And, the present results indicate that Type A's relinquish less task control than Type B's when another person is clearly superior in task capabilities. As a result, Type A's may not only utilize a maladaptive relinquishment strategy from a job stress standpoint, but from a job productivity/efficiency standpoint as well. As was pointed out previously, there are striking similarities between descriptions of Type A's in the psychological literature, and poor delegators in the management literature. When coupled with the fact that effective delegation is considered to be a central component of effective management (Beach, 1975; Cooper & Marshall, 1977; Eilon, 1979), and that poor delegation has been found to result in low productivity and manager ineffectiveness (Dowling & Sayles, 1978; Pfiffner, 1958), the present results imply that the Type A construct may prove to be of considerable utility in understanding management dynamics.

The present results, and the above comments, are of interest in comparison to

recent attempts to integrate the Type A construct with the components of work stress. Davidson and Cooper (1980) outline a model of the relationship between Type A behavior and the work environment that draws upon research findings in both the Type A and work stress literatures. Central to their framework is the idea that the work environment may conflict with the control needs of the Type A pattern. Chesney and Rosenman (1980) also contend that work conditions which lead to decreased perceived control are seen as most stressful, particularly for Type A's. Factors seen as likely to induce perceptions of low control include work overload, role conflict, poor relations at work, and job involvement (Cooper & Davidson, 1980), all of which are more likely to be a part of the Type A's work environment.

What these work stress models don't specify is how this presumed Type A - low control work environment arises. Perhaps Type A's self-select themselves into situations that are conducive to Type A behaviors (cf. Chesney & Rosenman, 1980; McMichael, 1978). Or, as the results of this study suggest, Type A's may actually create their work-related stress. By failing to relinquish control, they may increase workload and job involvement, erode work relationships, and feel considerable role conflict (their role requires effective delegation). In other words, Type A's may place themselves in the paradoxical position of actually exacerbating control loss in the work environment through their attempts to maintain personal control. Chesney and Rosenman (1980) also report that Type A managers indicated that they felt in control more than did Type B managers. This finding is consistent with the interpretation that Type A's create their stressful environments. If the Type A managers strive to maintain control, perhaps through low relinquishment, they should perceive themselves as being in control since they are "calling the shots". However, the secondary effects may be a work environment that is out of control and quite stressful.

In summary, reluctance on the part of Type A's to relinquish control may provide

the basis for a host of work-related problems. The present study demonstrates that such reluctance exists. It remains for future research to delineate the generality and full implications of these findings.

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Footnotes

[1]One could conceivably argue the opposite: Type A's will give up more control to a more capable other because this maximizes task control and success in the long run. This is similar to what Rothbaum, Weisz, and Snyder (1982) refer to as secondary control whereby individuals appear to give up the perception of control, but actually sustain control perceptions by bringing themselves in line with environmental forces. However, past research strongly suggests, and this paper will argue, that Type A's prefer primary control (see Rothbaum et al., 1982), where the self (rather than another) is viewed as the more powerful controlling agent. The position taken in this paper also leads to the conclusion that the Type A's overreliance on primary control is a less adaptive strategy than a judicious choice of primary or secondary control. This is quite consistent with the more general framework presented by Rothbaum et al.

[2]As outlined in the Method section, subjects participated in pairs, which introduces the possibility of dependencies in the data for pairmates. Given that subjects were separated throughout the experimental session, the presence of dependencies is not likely. A preliminary analysis indicated that pairmate scores were, in fact, independent.

[3]Examination of within-cell variability for the relinquishment measure indicated a high degree of heterogeneity. This heterogeneity was tested using a technique recently developed by O'Brien (1981) which is not overly sensitive to departures from normality (a serious problem with the F max test, and Bartlett's and Cochran's procedures, see Kirk, 1968). The technique first requires a transformation of the raw data, and then the computation of a traditional ANOVA on the transformed data. The resulting F ratio tests for the presence of heterogeneity of variances. This procedure verified the presence of heterogeneity of variances; $F(15,144) = 3.853$, $p<.001$. In order to determine whether this heterogeneity affected significance tests for relinquishment, the data were transformed to remove the heterogeneity, and ANOVA's computed on the transformed data. A square

root transformation removed a large proportion of the heterogeneity ($F(15,144) = 1.575$, $p <= .088$) without affecting any of the significance tests. A fourth root transformation removed the heterogeneity ($F(15,144) = 1.134$, $p = .332$) and also did not affect any of the significance tests.

[4]Type A's show a tendency to estimate higher proportions of successful trials for themselves on the second task ($M = .719$) than Type B's ($M = .654$), $F(1,144) = 2.473$, $p < .15$, $PV = .0144$. In addition, Type A's and B's exhibit no differences in their expectations for the proportion of successful trials for their partners ($F(1,144) = .012$). This translates into a higher net difference between the expected proportions for subjects and their partners for Type B's ($M = .119$) than Type A's ($M = .058$), $F(1,144) = 2.897$, $p < .10$, $PV = .0147$. Examination of the formula for estimated team success: $ES = (20 \times S) + (R \times (P - S))$ indicates that such differences when coupled with differential relinquishment cause Type B's to rely more heavily on their partner's capabilities while Type A's rely more heavily on their own capabilities (S = expected proportion of successful trials for subject, P = expected proportion of successful trials for partner, R = number of trials relinquished to partner).

Table 1

Rated Quality of Partner's Performance as a function of Feedback about Partner's Performance

	Feedback about Partner's Performance			
	No Feedback	10 Correct	13 Correct	18 Correct
Quality of Performance	4.281_d	4.858_c	5.850_b	6.740_a

Note. Range of values = 1 to 7. Means with different subscripts are significantly different ($p<.05$) by the Newman-Keuls procedure.

Table 2

Relinquishment of Trials as a function of Type A/B and Feedback about Partner's Performance

	Feedback about Partner's Performance				
	No Feedback	10 Correct	13 Correct	18 Correct	F^a
Type A's	10.369	11.033	10.863	11.771	1.004
Type B's	10.167	10.650	11.845	14.917	16.592[c]
F^b	.061	.218	1.434	14.720[c]	

[a]Simple main effects of Feedback about Partner's Performance.

[b]Simple main effects of Type A/B.

[c]$p < .001$

Table 3

Attributions for Partner's Performance as a function of Type A/B and Feedback about the Partner's Performance

	Feedback about Partner's Performance				
	No Feedback	10 Correct	13 Correct	18 Correct	F[a]
Internality					
Type A's	2.512	2.306	2.561	2.312	.179
Type B's	3.570	2.704	2.1461	1.604	7.145[d]
F[b]	5.674[c]	.803	.873	2.541	
Ability					
Type A's	4.710	4.861	5.121	5.396	1.992
Type B's	4.333	4.896	5.310	6.146	12.756[d]
F[b]	1.556	.013	.391	6.158[c]	

Note. Lower means represent greater internality.

[a]Simple main effects of Feedback about Partner's Performance.

[b]Simple main effects of Type A/B.

[c]$p < .025$

[d]$p < .001$